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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,812	02/08/2002	Yasukazu Iwasaki	040356-0424	8928
22428	7590	11/01/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,812

Applicant(s)

IWASAKI ET AL.

Examiner

Julian Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-13 is/are rejected.
- 7) ☐ Claim(s) 5-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Remarks

This Office action is responsive to applicant's amendment filed September 3, 2004.

Claims 1-13 are pending.

This Office action presents a new ground of rejection and is therefore made NON-FINAL.

Claim Rejections - 35 USC § 102

The rejection of claims 1-4 and 9-12 under 35 U.S.C. 102(b) based on Okamoto (U.S. Pat. 6,045,933) has been withdrawn.

Applicant's arguments have been fully considered. To this extent, the examiner acquiesces with applicant's assertions that the circulation passage [52] in Okamoto does not circulate a gaseous part of the exhaust. The portion of the exhaust circulated by the passage [52] is water which is then directed to water tank [24]. (col. 3 line 9-18)

New Rejection:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker (U.S. Pat. 4,365,006).

Regarding independent claim 1, Baker teaches a fuel cell system having an exhaust circulation passage [8] for both the anode and cathode side of the fuel cell. (col. 2 line 21-24, also applies to claims 10, 11) A vaporizer [54] and venturi nozzle [17] serve as a fuel injection mechanism for a liquid fuel such as methanol so that the fuel is fed into the circulated exhaust gas. (col. 3 line 8-27) A vaporizer, i.e. burner vaporizes the mixture, "[a] burner 18 in thermal contact with vaporizer 16 provides the necessary heat for vaporizing the pressurized fuel received from pump 12." (col. 3 line 28-30). A reformer [11a] reforms fuel gas upstream of the fuel cell. (col. 2 line 55-63)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker as applied to claims 1 and 10-12 above, in view of Okamoto (U.S. Pat. 6,045,933).

The teachings of Baker are discussed above.

Regarding claim 2, Baker does not explicitly teach a circulation blower. However, as discussed in the prior Office action, Okamoto teaches a pump [62] as a circulation blower downstream of a vaporizer [54]. (col. 3 line 34-38) The skilled artisan would find obvious to

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employ a circulation blower in Baker for reasons such as ensuring return passage of the exhaust gas. (*ib*) It is further noted that Baker discloses the need for a pump in order to supply adequate pressure of the exhaust gas. (col. 3 line 25-27)

With respect to claims 3 and 4, Baker does not explicitly teach a water feeder or water injection mechanism. However, in Okamoto a humidifying device [164] humidifies the hydrogen gas while also further disclosed as having an injector mechanism, *inter alia*. (col. 8 line 48-58) The skilled artisan would find obvious to modify Baker's invention by employing a water feeder or injection mechanism. The motivation for such a modification would be to control and correct for humidify levels of the fuel gas. (*ib*)

As to claim 9, while Baker does not teach the fuel cell as a solid-oxide type, Okamoto teaches art-recognition a solid-oxide fuel cell to other fuel cell types such as alkali type, phosphoric acid, molten carbonate, etc. (col. 1 line 16-25) A solid-oxide type fuel cell would be an obvious substitution to the skilled artisan in recognition of its applicability in high-powered applications.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baker as applied to claims 1 and 10-12 above, in view of Hsu (U.S. Pat. 5,747,185)

The teachings of Baker are discussed above.

Baker does not explicitly teach performing internal reforming. However, Hsu teaches internal reforming of a fuel cell as an improvement over an external reforming configuration. (compare Figure 1 and Figure 5) The skilled artisan would find obvious to perform internal

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reforming for reasons such as compacting of the fuel cell and conservation of energy that would otherwise be expended in external reformation.

The examiner notes that to the extent any arguments submitted for Hsu may be applicable towards the new ground of rejection, arguments submitted for Hsu appear to be directed solely to this reference failing to remedy alleged deficiencies of the Okamoto reference (now withdrawn as a primary reference when combined with the Hsu reference).

Allowable Subject Matter

Claims 5-8 are maintained objected to as being dependent upon a rejected base claim, but would be allowable for the reasons set forth in the prior Office action if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

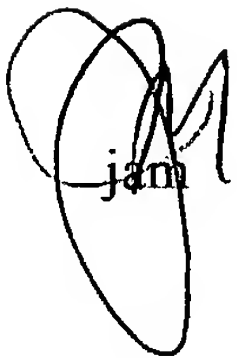
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

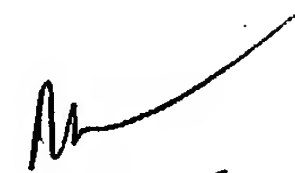
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

jam


Patrick Ryan
SPE-AU1745